



No.

8400047

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Sogetal, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT.

UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'Hipro'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this 31st day of March in
the year of our Lord one thousand nine
hundred and eighty-seven.

Attest:

Kenneth H. Warren
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Ronald E. Lyng
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

| | | | | |
|---|---------------------------------|--|---|--|
| <p>1. NAME OF APPLICANT(S) Sogetal</p> <p>4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 3872 BAY CENTER PLACE 830 Bransten Road San Carlos, CA 94070 HAYWARD, CA 94545</p> <p>6. GENUS AND SPECIES NAME Triticum aestivum</p> <p>8. KIND NAME Wheat, Common Hard Red Spring</p> <p>10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporations</p> <p>11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware</p> <p>13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Robert W. Pytlman Jr. YVES OULDIN 830 Bransten Road San Carlos, CA 94070 SOGETAL, INC. 3872 BAY CENTER PLACE HAYWARD, CA 94545</p> <p>14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED</p> <p>a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)</p> <p>b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement</p> <p>c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)</p> <p>d. <input type="checkbox"/> Exhibit D, Additional Description of the Variety</p> <p>15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)</p> <p><input checked="" type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input type="checkbox"/> No</p> <p>16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?</p> <p><input checked="" type="checkbox"/> Foundation <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified</p> <p>18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?</p> <p><input type="checkbox"/> Yes (If "Yes," give date) 12/30/85 <input type="checkbox"/> No</p> <p>19. HAS THE VARIETY BEEN OFFERED FOR SALE OR MARKETED IN THE U.S. OR OTHER COUNTRIES?</p> <p><input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No</p> <p>20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.</p> <p>The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.</p> <p>Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.</p> | | | <p>2. TEMPORARY DESIGNATION IS - 8314</p> <p>5. PHONE (Include area code) 785-1881 (415) 595-5335</p> <p>7. FAMILY NAME (Botanical) Gramineae</p> <p>9. DATE OF DETERMINATION August, 1982</p> <p>12. DATE OF INCORPORATION</p> <p>3. VARIETY NAME HIPRO</p> <p>4. FOR OFFICIAL USE ONLY PVPO NUMBER 8400047</p> <p>FILING DATE 2/13/84</p> <p>FEES RECEIVED TIME 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.</p> <p>AMOUNT FOR FILING \$ 1,000</p> <p>DATE 2/13/84</p> <p>AMOUNT FOR CERTIFICATE \$ 500.00</p> <p>DATE November 17, 1986</p> | |
| SIGNATURE OF APPLICANT  | DATE January 19, 1984 | | | |
| SIGNATURE OF APPLICANT Sogetal, Inc. | DATE 1 | | | |

8400047

Agri-Business
Biotechnology

Sogetal, Inc.

PHONE: 415-981-5500

820 Bransten Road
San Carlos, Ca. 94070

Exhibit A. HIPRO
Breeding History: IS-8314

2/17/87
IS 8314 is a hard red spring wheat variety (Triticum aestivum) developed by the International Plant Research Institute for Sogetal. This variety was derived by pedigree selection of progeny from the cross TEZANOS PINTOS PRECOZ // IRN46 / CARINA /3/ PROTOR /4/ NACOZARI 76 by the Centro International de Mejoramiento de Maiz y Trigo (CIMMYT). The line was bulked in the F5 generation and a sample sent to the Organizacão das Cooperativas do Estado do Parana, a growers cooperative in Brazil.

IS 8314 was an aluminum tolerant plant selection from this population in Parana state, Brazil during the 1981 growing season by IPRI. This selection was grown in Klamath Falls, Oregon, USA Spring 1981 and the plot bulked in October 1981. The seed from the Klamath Falls plot was increased in Ontario, Oregon, USA Spring 1982, and increased again as breeders seed in Yuma, Arizona, USA Winter 1982-83. The breeders seed was released for foundation seed planting November 1983.

ADDENDUM TO WHEAT APPLICATION NO. 8400047

2/17/87 'HIPRO'
14a. No identifiable variants have been found in 'IS-8314' during the multiplication process. 'IS-8314' is a stable and uniform cultivar in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables.

2/17/87

2/17/87 'HIPRO'
14b. 'IS-8314' is most similar to Yecora Rojo but differs in that it has much better resistance to Barley Yellow Dwarf, Stripe Rust and Septoria tuitici. 'IS-8314' averages 7 inches taller than Yecora Rojo when grown under normal conditions. The above comparisons, along with the objective description (13c), show 'IS-8314' to be a novel variety of hard red spring wheat.

8400047

Sogetal, Inc.

PHONE: 415-981-5500

Agri-Business
Biotechnology

830 Bransten Road
San Carlos, Ca. 94070

Exhibit B. H PRO

Novelty Statement: IS-8314

IS 8314 is a spring wheat selected to be grown under irrigated conditions in Mediterranean type climates such as Southwestern USA. IS 8314 is an excellent bread baking wheat with quality comparable to the California quality standard, Yecora Rojo (see attached USDA quality tests) and superior yield (see Exhibit D). IS 8314 produces unusually uniform seed with high test weights, and free of yellow berry.

Morphologically, IS 8314 has several unique characteristics. It is a high tillering variety that produces a dense leafy canopy. IS 8314 is a semi-dwarf wheat that is considerably taller than semi-dwarf wheats currently grown in the Southwest. Despite the height, IS 8314 has excellent standability, comparable to the lodging resistance of shorter semi-dwarf varieties such as Anza. The combination of these morphological traits should give IS 8314 advantages where extreme short stature or lodging causes problems with weed control and/or harvest.

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Table 17. 1985 Madera Common Wheat Test

| Entry | Yield (lb/a) | Lodging 5/22 | Lodging at harvest | BYDV | Plant height (in) | Test weight (lb/bu) | Black point | Yellow berry | Thousand kernel weight (grams) |
|---------------------|-----------------|-----------------|--------------------------|------|-------------------------|---------------------------|----------------|-----------------|---|
| 20 Anza | 7260 (5) | 2.3 | 3.8 | 1.0 | 37 | 63.9 | 2.0 | 2.0 | 40.5 |
| 112 Yecora Rojo | 5980 (30) | 2.8 | 4.0 | 4.8 | 32 | 64.2 | 2.0 | 1.0 | 50.3 |
| 221 Phoenix | 7220 (7) | 2.0 | 3.0 | 1.0 | 35 | 63.2 | 1.5 | 7.0 | 41.5 |
| 243 Probred | 5120 (36) | 2.0 | 2.8 | 5.0 | 31 | 63.3 | 1.5 | 1.0 | 51.8 |
| 353 Yolo | 7600 (3) | 1.3 | 2.5 | 1.3 | 37 | 63.8 | 1.0 | 3.0 | 38.5 |
| 415 Klesic | 5610 (33) | 1.0 | 1.8 | 5.0 | 32 | 65.1 | 2.0 | 1.0 | 53.0 |
| 521 Westbred 911 | 7250 (6) | 1.8 | 2.3 | 1.3 | 34 | 64.2 | 1.0 | 1.0 | 52.0 |
| 536 NK 2437 | 6220 (25) | 1.0 | 1.5 | 5.0 | 30 | 64.3 | 1.5 | 1.0 | 50.8 |
| 538 Probrand 775 | 6810 (15) | 1.0 | 1.3 | 3.0 | 32 | 62.4 | 1.5 | 2.0 | 42.0 |
| 544 Tadina | 6230 (24) | 2.0 | 2.8 | 1.3 | 37 | 63.7 | 1.0 | 2.5 | 43.3 |
| 619 IPRI 8314-HIPRO | 6200 (26) | 2.0 | 3.5 | 2.0 | 38 | 63.9 | 1.0 | 1.0 | 50.3 |
| 620 IPRI 8322 | 6850 (13) | 4.3 | 4.8 | 2.3 | 36 | 63.7 | 1.0 | 1.0 | 43.5 |
| 623 9031 | 6300 (22) | 1.0 | 2.8 | 1.3 | 40 | 63.5 | 1.0 | 1.0 | 37.8 |
| 624 WRE 80-34 | 6800 (16) | 2.3 | 2.8 | 1.5 | 39 | 63.5 | 1.0 | 1.0 | 41.8 |
| 627 UC 627 | 5490 (34) | 4.3 | 4.3 | 3.3 | 37 | 64.5 | 1.5 | 1.0 | 45.0 |
| 628 UC 628 | 6640 (19) | 2.5 | 3.3 | 1.0 | 37 | 63.9 | 1.0 | 1.0 | 42.3 |
| 629 UC 629 | 6940 (11) | 1.0 | 1.0 | 1.0 | 39 | 64.5 | 1.5 | 3.5 | 44.5 |
| 630 UC 630 | 6750 (17) | 1.0 | 1.3 | 1.3 | 37 | 65.1 | 1.0 | 2.0 | 40.3 |
| 631 CM 43367 | 6010 (28) | 3.3 | 4.0 | 1.3 | 38 | 64.3 | 1.0 | 1.0 | 46.0 |
| 632 LRR Anza | 6930 (12) | 1.5 | 1.5 | 1.0 | 38 | 64.3 | 1.0 | 2.5 | 42.8 |
| 633 UC 633 | 7760 (2) | 1.3 | 2.0 | 2.0 | 37 | 64.1 | 1.0 | 3.5 | 41.8 |
| 634 UC 634 | 6290 (23) | 3.5 | 4.0 | 1.3 | 36 | 65.3 | 1.5 | 1.5 | 43.8 |
| 635 UC 635 | 7090 (9) | 1.3 | 1.5 | 2.5 | 36 | 64.7 | 1.5 | 1.0 | 42.5 |
| 636 UC 636 | 7110 (8) | 1.0 | 2.0 | 2.3 | 38 | 64.1 | 1.0 | 2.0 | 40.3 |
| 637 UC 637 | 5930 (31) | 3.0 | 4.0 | 3.5 | 37 | 64.8 | 1.0 | 1.5 | 42.3 |
| 638 CM 16076 | 6720 (18) | 5.3 | 5.3 | 1.0 | 38 | 64.0 | 1.0 | 2.0 | 47.3 |
| 671 IPRI 83501 | 6580 (20) | 4.5 | 5.8 | 4.3 | 35 | 62.7 | 1.0 | 1.0 | 40.3 |
| 672 P982-38 | 7810 (1) | 1.0 | 1.0 | 2.0 | 36 | 63.4 | 1.0 | 1.0 | 50.0 |
| 673 P982-83 | 7010 (10) | 1.0 | 1.5 | 2.0 | 32 | 64.0 | 1.0 | 2.0 | 47.8 |
| 678 MP-302 | 5330 (35) | 1.0 | 1.3 | 4.0 | 29 | 63.9 | 2.0 | 1.0 | 38.8 |
| 679 MP-325 | 5840 (32) | 4.3 | 4.8 | 3.3 | 40 | 63.5 | 1.0 | 1.5 | 49.5 |
| 680 Calgene 1551 | 6470 (21) | 1.5 | 2.3 | 2.8 | 31 | 62.6 | 1.5 | 1.0 | 50.0 |
| 681 UC 681 | 5980 (29) | 1.0 | 1.3 | 2.0 | 39 | 64.3 | 1.0 | 2.5 | 42.8 |
| 682 UC 682 | 6130 (27) | 1.5 | 2.0 | 1.8 | 38 | 64.3 | 1.0 | 2.0 | 42.8 |
| 683 UC 683 | 7290 (4) | 1.0 | 1.3 | 1.8 | 37 | 63.5 | 1.5 | 1.5 | 44.0 |
| 684 Veery 'S' | 6840 (14) | 1.5 | 2.3 | 3.3 | 38 | 63.5 | 1.0 | 1.0 | 44.5 |
| Mean | 6570 | 2.0 | 2.7 | 2.3 | 36 | 63.9 | 1.3 | 1.7 | 44.6 |
| CV | 9.1 | 63.4 | 60.2 | 40.1 | 4.7 | 0.8 | 29.6 | 45.8 | 4.4 |
| LSD (.05) | 840 | 1.8 | 2.3 | 1.3 | 3 | 1.0 | 0.8 | 1.6 | 3.9 |

Rating scale for diseases (area of flag-1 leaf affected), lodging, shatter: 1 = 0-3%; 2 = 4-14%; 3 = 15-29%; 4 = 30-49%; 5 = 50-69%; 6 = 70-84%; 7 = 85-95%; 8 = 96-100%.

Diseases assessed but occurring in trace or less amounts: leaf rust, stripe rust, septoria and powdery mildew.

Table 14. 1985 Sutter Common Wheat Test

| Entry | Yield (lb/a) | Lodging 5/2 | Lodging at harvest | BYDV | Septoria | Plant height (in) | Test weight (lb/bu) | Yellow- berry | Thousand kernel weight (grams) |
|------------------|-----------------|----------------|--------------------------|------|----------|-------------------------|---------------------------|------------------|---|
| 20 Anza | 7100 (5) | 1.0 | 1.0 | 1.0 | 2.3 | 38 | 62.6 | 8.0 | 38.3 |
| 112 Recora Rojo | 5510 (33) | 1.0 | 1.0 | 1.0 | 6.0 | 33 | 64.9 | 2.0 | 51.8 |
| 221 Phoenix | 7460 (3) | 1.0 | 1.0 | 1.0 | 1.8 | 39 | 62.5 | 8.0 | 38.8 |
| 243 Probred | 5440 (34) | 1.0 | 1.0 | 1.5 | 4.0 | 35 | 64.4 | 1.5 | 52.8 |
| 353 Yolo | 7610 (1) | 1.0 | 1.0 | 1.0 | 1.3 | 38 | 63.5 | 8.0 | 38.5 |
| 415 Klaslc | 6530 (14) | 1.0 | 1.0 | 1.3 | 4.8 | 34 | 65.5 | 2.0 | 54.0 |
| 521 Westbred 911 | 6750 (10) | 1.0 | 1.0 | 1.0 | 4.5 | 38 | 62.3 | 8.0 | 45.3 |
| 536 NK 2437 | 6270 (20) | 1.0 | 1.0 | 1.8 | 5.3 | 35 | 64.8 | 1.5 | 52.0 |
| 538 Probrand 775 | 6230 (22) | 1.0 | 1.0 | 1.0 | 5.8 | 32 | 63.1 | 7.0 | 44.3 |
| 544 Tadinala | 6820 (8) | 1.0 | 1.0 | 1.0 | 1.0 | 41 | 62.2 | 8.0 | 41.5 |
| 619 IPRI 8314 | 6070 (26) | 1.0 | 1.3 | 1.5 | 2.0 | 42 | 63.5 | 4.5 | 48.0 |
| 620 IPRI 8322 | 6120 (25) | 1.0 | 1.0 | 1.8 | 3.8 | 38 | 64.2 | 3.5 | 44.5 |
| 623 9031 | 5910 (29) | 1.0 | 1.0 | 1.3 | 2.8 | 38 | 64.5 | 2.5 | 35.0 |
| 624 WRE 80-34 | 5880 (30) | 1.0 | 1.0 | 1.0 | 4.5 | 41 | 63.6 | 3.5 | 40.5 |
| 627 UC 627 | 6030 (27) | 1.5 | 1.3 | 1.8 | 2.3 | 37 | 65.1 | 2.5 | 41.0 |
| 628 UC 628 | 6170 (24) | 1.0 | 1.0 | 1.0 | 1.5 | 38 | 64.7 | 3.5 | 40.8 |
| 629 UC 629 | 6720 (12) | 1.0 | 1.0 | 1.0 | 1.8 | 39 | 63.5 | 8.0 | 38.5 |
| 630 UC 630 | 6440 (17) | 1.0 | 1.0 | 1.0 | 2.8 | 38 | 64.0 | 7.5 | 37.3 |
| 631 GM 43367 | 5580 (32) | 1.5 | 1.3 | 1.8 | 2.3 | 44 | 64.3 | 1.5 | 41.0 |
| 632 LRR Anza | 6410 (18) | 1.0 | 1.0 | 1.0 | 1.3 | 38 | 65.0 | 8.0 | 38.0 |
| 633 UC 633 | 7440 (4) | 1.0 | 1.0 | 1.3 | 2.5 | 38 | 62.6 | 8.0 | 38.5 |
| 634 UC 634 | 6360 (19) | 1.0 | 1.0 | 1.0 | 3.0 | 35 | 65.2 | 7.0 | 41.8 |
| 635 UC 635 | 6780 (9) | 1.0 | 1.0 | 1.3 | 4.8 | 37 | 64.3 | 5.5 | 38.0 |
| 636 UC 636 | 6250 (21) | 1.0 | 1.3 | 1.5 | 3.5 | 38 | 64.0 | 4.5 | 38.3 |
| 637 UC 637 | 6210 (23) | 1.0 | 1.0 | 1.0 | 2.3 | 39 | 64.3 | 7.0 | 41.0 |
| 638 CM 16076 | 6930 (6) | 2.0 | 1.8 | 1.0 | 2.3 | 43 | 63.0 | 8.0 | 46.3 |
| 671 IPRI 83501 | 6530 (15) | 1.0 | 1.0 | 3.5 | 2.0 | 40 | 63.2 | 3.5 | 40.3 |
| 672 P982-38 | 6730 (11) | 1.0 | 1.0 | 1.0 | 4.3 | 35 | 62.0 | 8.0 | 45.5 |
| 673 P982-83 | 6640 (13) | 1.0 | 1.0 | 1.0 | 4.0 | 36 | 62.1 | 8.0 | 43.5 |
| 678 MP-302 | 4020 (36) | 1.0 | 1.0 | 1.3 | 5.0 | 29 | 64.5 | 1.5 | 40.3 |
| 679 MP-325 | 5210 (35) | 2.8 | 3.0 | 3.8 | 2.0 | 42 | 63.2 | 7.0 | 49.8 |
| 680 Calgene 1551 | 6910 (7) | 1.0 | 1.0 | 2.0 | 2.5 | 34 | 62.9 | 3.5 | 49.3 |
| 681 UC 681 | 5930 (28) | 1.0 | 1.0 | 1.3 | 1.0 | 40 | 62.7 | 8.0 | 40.3 |
| 682 UC 682 | 5590 (31) | 1.0 | 1.0 | 1.3 | 1.0 | 42 | 62.7 | 8.0 | 40.5 |
| 683 UC 683 | 7600 (2) | 1.0 | 1.0 | 1.3 | 1.0 | 41 | 62.8 | 8.0 | 43.8 |
| 684 Veery 'S' | 6440 (16) | 1.0 | 1.0 | 3.0 | 2.0 | 40 | 63.3 | 5.0 | 39.8 |
| Mean | 6350 | 1.1 | 1.1 | 1.4 | 2.9 | 38 | 63.6 | 5.5 | 42.7 |
| CV | 6.6 | 25.8 | 21.1 | 33.5 | 28.2 | 3.7 | 0.4 | 19.7 | 1.8 |
| LSD (.05) | 590 | 0.4 | 0.3 | 0.7 | 1.1 | 3 | 0.5 | 2.2 | 1.5 |

Rating scale for diseases (area of flag-1 leaf affected) and lodging: 1 = 0-3%; 2 = 4-14%; 3 = 15-29%; 4 = 30-49%; 5 = 50-69%; 6 = 70-84%; 7 = 85-95%; 8 = 96-100%.

Diseases assessed but occurring in trace or less amounts: leaf rust, stripe rust, powdery mildew, and black point.

Numbers in parentheses indicate relative rank in column.

BYDV ratings (see above scale) were based on percentage of plants showing foliar symptoms.

Table 15. 1985 UC Davis Common Wheat Test

| Entry | Yield (lb/a) | BYDV | Stripe Rust | Plant height (in.) | Days to heading (after 3/1) | Test weight (lb/bu) | Yellow- berry | Thousand kernel weight (grams) |
|---------------------|-----------------|------|----------------|--------------------------|-----------------------------------|---------------------------|------------------|---|
| 20 Anza | 5690 (26) | 2.0 | 1.3 | 34 | 58 | 62.0 | 3.5 | 36.3 |
| 112 Yecora Rojo | 6630 (10) | 2.8 | 3.0 | 33 | 53 | 61.9 | 1.0 | 45.3 |
| 221 Phoenix | 5940 (21) | 2.3 | 1.8 | 34 | 59 | 61.8 | 2.0 | 37.0 |
| 243 Probreed | 6900 (7) | 3.0 | 2.3 | 31 | 55 | 61.6 | 1.0 | 47.5 |
| 353 Yolo | 6880 (8) | 2.3 | 1.5 | 37 | 57 | 62.2 | 1.5 | 35.8 |
| 415 Klasic | 7390 (1) | 2.0 | 1.5 | 31 | 54 | 63.6 | 1.0 | 47.0 |
| 521 Westbred 911 | 6170 (17) | 1.5 | 2.0 | 30 | 60 | 61.0 | 1.0 | 44.8 |
| 536 NK 2437 | 6270 (15) | 3.3 | 3.3 | 31 | 56 | 61.3 | 1.0 | 45.3 |
| 538 Probrand 775 | 5720 (25) | 2.0 | 4.3 | 30 | 55 | 58.9 | 1.0 | 35.8 |
| 544 Tadinia | 5070 (35) | 3.0 | 1.0 | 39 | 60 | 60.3 | 4.5 | 37.5 |
| 619 IPRI-8314-WIP20 | 5260 (32) | 3.0 | 1.0 | 40 | 57 | 60.3 | 1.0 | 45.3 |
| 620 IPRI 8322 | 5940 (20) | 2.0 | 1.0 | 36 | 56 | 61.1 | 1.0 | 42.3 |
| 623 9031 | 5730 (24) | 1.0 | 1.0 | 36 | 56 | 62.0 | 1.0 | 38.0 |
| 624 WRE 80-34 | 5490 (30) | 2.8 | 1.0 | 37 | 61 | 60.1 | 1.0 | 39.0 |
| 627 UC 627 | 6490 (11) | 2.5 | 3.0 | 37 | 61 | 64.2 | 1.0 | 45.0 |
| 628 UC 628 | 6350 (12) | 2.3 | 1.3 | 35 | 56 | 62.5 | 1.0 | 40.0 |
| 629 UC 629 | 5890 (22) | 1.8 | 1.0 | 34 | 61 | 62.6 | 1.0 | 37.3 |
| 630 UC 630 | 5260 (31) | 2.5 | 2.0 | 36 | 61 | 63.3 | 2.0 | 37.5 |
| 631 CM 43367 | 6340 (13) | 3.8 | 1.0 | 41 | 58 | 62.4 | 1.0 | 43.3 |
| 632 LRR Anza | 5780 (23) | 2.0 | 1.3 | 34 | 60 | 61.9 | 2.5 | 36.5 |
| 633 UC 633 | 7270 (3) | 2.0 | 1.8 | 37 | 58 | 62.6 | 2.0 | 37.3 |
| 634 UC 634 | 6760 (9) | 2.3 | 2.8 | 37 | 57 | 63.5 | 1.0 | 39.3 |
| 635 UC 635 | 6220 (16) | 2.8 | 2.5 | 37 | 55 | 62.6 | 1.0 | 36.3 |
| 636 UC 636 | 6140 (18) | 2.5 | 2.5 | 38 | 59 | 62.5 | 1.0 | 38.0 |
| 637 UC 637 | 7370 (2) | 1.8 | 1.3 | 36 | 56 | 63.5 | 1.0 | 39.8 |
| 638 CM 16076 | 7040 (6) | 1.5 | 1.0 | 39 | 60 | 62.0 | 1.0 | 41.5 |
| 671 IPRI 83501 | 7130 (4) | 2.0 | 1.3 | 38 | 55 | 62.0 | 1.0 | 42.3 |
| 672 P982-38 | 6280 (14) | 1.5 | 2.3 | 30 | 61 | 60.3 | 1.0 | 44.5 |
| 673 P982-83 | 6050 (19) | 2.0 | 3.3 | 35 | 62 | 60.8 | 1.0 | 43.3 |
| 678 MP-302 | 5580 (28) | 2.8 | 1.0 | 29 | 53 | 61.2 | 1.0 | 34.8 |
| 679 MP-325 | 5230 (33) | 4.0 | 2.5 | 42 | 58 | 61.4 | 1.0 | 47.0 |
| 680 Calgene 1551 | 5620 (27) | 2.8 | 1.0 | 31 | 56 | 58.7 | 1.0 | 44.8 |
| 681 UC 681 | 4920 (36) | 4.3 | 1.0 | 39 | 59 | 61.0 | 1.0 | 38.5 |
| 682 UC 682 | 5130 (34) | 4.5 | 1.0 | 39 | 56 | 61.7 | 1.0 | 40.5 |
| 683 UC 683 | 5530 (29) | 2.8 | 1.0 | 36 | 60 | 60.7 | 1.0 | 39.5 |
| 684 Veery 'S' | 7110 (5) | 2.0 | 1.3 | 38 | 56 | 61.9 | 1.0 | 42.8 |
| Mean | 6130 | 2.5 | 1.7 | 35 | 58 | 61.7 | 1.3 | 40.7 |
| CV | 5.3 | 20.8 | 27.0 | 3.7 | - | 0.5 | 17.3 | 2.7 |
| LSD (.05) | 450 | 0.7 | 0.7 | 3 | - | 0.6 | 0.5 | 2.2 |

Rating scale for diseases (area of flag-1 leaf affected) and yellowberry: 1 = 0-3%; 2 = 4-14%; 3 = 15-29%; 4 = 30-49%; 5 = 50-69%; 6 = 70-84%; 7 = 85-95%; 8 = 96-100%.

Diseases assessed but occurring in trace or less amounts: leaf rust, septoria, powdery mildew, and black point.

Numbers in parentheses indicate relative rank in column.

BYDV ratings (see above scale) were based on percentage of plants showing foliar symptoms.

Table 16. 1985 Sacramento - San Joaquin Delta Common Wheat Test

| Entry | Yield (lb/a) | BYDV | Powdery mildew | Plant height (in) | Test weight (lb/bu) | Yellow- berry | Thousand kernel weight (grams) |
|----------------------|-----------------|------|-------------------|-------------------------|---------------------------|------------------|---|
| 20 Anza | 7670 (19) | 1.3 | 1.3 | 32 | 63.8 | 2.5 | 40.0 |
| 112 Yecora Rojo | 7640 (20) | 2.0 | 1.8 | 25 | 63.7 | 1.0 | 46.8 |
| 221 Phoenix | 8030 (16) | 1.5 | 1.0 | 32 | 63.9 | 3.0 | 41.5 |
| 243 Probred | 8480 (5) | 2.0 | 1.3 | 24 | 63.3 | 1.0 | 48.3 |
| 353 Yolo | 8910 (2) | 1.0 | 1.0 | 32 | 64.0 | 5.0 | 38.8 |
| 415 Klasic | 7750 (18) | 2.5 | 1.0 | 25 | 64.6 | 1.0 | 49.8 |
| 521 Westbred 911 | 8640 (4) | 1.0 | 1.0 | 28 | 63.7 | 3.0 | 51.3 |
| 536 NK 2437 | 8320 (7) | 2.3 | 1.3 | 25 | 63.1 | 1.0 | 49.3 |
| 538 Probrand 775 | 8330 (6) | 1.8 | 2.3 | 26 | 61.6 | 2.0 | 41.0 |
| 544 Tadinia | 7050 (29) | 1.3 | 1.0 | 32 | 63.4 | 4.5 | 40.8 |
| 619 IPRI 8314 HT PWD | 6960 (30) | 1.8 | 1.0 | 35 | 62.7 | 1.0 | 46.0 |
| 620 IPRI 8322 | 7070 (28) | 1.5 | 1.0 | 32 | 62.7 | 1.0 | 42.0 |
| 623 9031 | 8150 (9) | 1.3 | 1.0 | 32 | 63.9 | 1.0 | 37.8 |
| 624 WRE 80-34 | 6690 (33) | 2.0 | 1.0 | 31 | 61.8 | 1.0 | 39.8 |
| 627 UC 627 | 7390 (25) | 1.3 | 1.0 | 34 | 64.2 | 1.0 | 47.0 |
| 628 UC 628 | 6640 (34) | 2.0 | 1.0 | 31 | 63.2 | 1.0 | 43.8 |
| 629 UC 629 | 7540 (22) | 1.5 | 1.0 | 32 | 64.2 | 4.0 | 42.0 |
| 630 UC 630 | 7440 (24) | 1.0 | 1.0 | 33 | 65.1 | 4.0 | 40.8 |
| 631 CM 43367 | 6820 (32) | 2.5 | 1.0 | 34 | 63.7 | 1.0 | 44.8 |
| 632 LRR Anza | 8220 (8) | 1.3 | 1.0 | 31 | 63.6 | 5.5 | 41.0 |
| 633 UC 633 | 8960 (1) | 1.0 | 1.0 | 32 | 63.8 | 4.5 | 39.5 |
| 634 UC 634 | 8110 (11) | 1.3 | 1.3 | 30 | 64.7 | 1.0 | 41.5 |
| 635 UC 635 | 7550 (21) | 1.8 | 2.5 | 33 | 63.7 | 1.0 | 38.8 |
| 636 UC 636 | 6950 (31) | 2.0 | 2.5 | 31 | 63.3 | 1.0 | 38.3 |
| 637 UC 637 | 8050 (14) | 1.0 | 1.3 | 33 | 63.8 | 1.0 | 42.0 |
| 638 CM 16076 | 8730 (3) | 1.0 | 1.3 | 32 | 63.8 | 5.0 | 44.3 |
| 671 IPRI 83501 | 7830 (17) | 2.0 | 1.0 | 32 | 62.4 | 1.0 | 42.5 |
| 672 P982-38 | 8120 (10) | 1.3 | 1.0 | 29 | 63.0 | 2.0 | 50.8 |
| 673 P982-83 | 8110 (12) | 1.5 | 1.0 | 29 | 63.5 | 2.0 | 48.8 |
| 678 MP-302 | 6230 (35) | 2.5 | 1.0 | 26 | 62.8 | 1.0 | 36.5 |
| 679 MP-325 | 6220 (36) | 3.3 | 1.0 | 34 | 62.7 | 2.0 | 49.8 |
| 680 Calgene 1551 | 7450 (23) | 1.8 | 1.0 | 28 | 61.5 | 1.0 | 49.0 |
| 681 UC 681 | 7220 (26) | 2.3 | 1.0 | 34 | 63.6 | 2.0 | 41.3 |
| 682 UC 682 | 7130 (27) | 1.5 | 1.0 | 34 | 63.7 | 3.5 | 42.5 |
| 683 UC 683 | 8040 (15) | 2.0 | 1.0 | 32 | 62.8 | 2.5 | 42.5 |
| 684 Veery 'S' | 8100 (13) | 1.8 | 1.0 | 34 | 63.1 | 1.5 | 42.0 |
| Mean | 7680 | 1.7 | 1.2 | 30 | 63.4 | 2.1 | 43.4 |
| CV | 6.6 | 35.0 | 25.8 | 3.7 | 0.5 | 48.0 | 3.0 |
| LSD (.05) | 710 | 0.8 | 0.4 | 2 | 0.6 | 2.1 | 2.6 |

Rating scale for diseases (area of flag-1 leaf affected) and yellowberry: 1 = 0-3%; 2 = 4-14%; 3 = 15-29%; 4 = 30-49%; 5 = 50-69%; 6 = 70-84%; 7 = 85-95%; 8 = 96-100%.

Diseases assessed but occurring in trace or less amounts: leaf rust, stripe rust, septoria, and black point.

Numbers in parentheses indicate relative rank in column.

BYDV ratings (see above scale) were based on percentage of plants showing foliar symptoms.

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11. HEAD:

1 Density: 1 = LAX 2 = DENSE

2 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify) _____

4 Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

0 9 CM. LENGTH

1 6 MM. WIDTH

12. GLUMES AT MATURITY:

3 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)
3 = LONG (CA. 9 mm.)

3 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
3 = WIDE (CA. 4 mm.)

1 Shoulder: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
shape: 4 = SQUARE 5 = ELEVATED 6 = APICULATE

1 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

1 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

1 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

3 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

3 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

1 Check: 1 = ROUNDED 2 = ANGULAR

1 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

1 Brush: 1 = NOT COLLARED 2 = COLLARED

Phenol reaction 1 = IVORY 2 = FAWN 3 = LT. BROWN
(See instructions): 4 = BROWN 5 = BLACK

3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

0 7 MM. LENGTH

0 3 MM. WIDTH

6 2 GM. PER 1000 SEEDS

17. SEED CREESE:

1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

2 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

2 STEM RUST
(Races) _____

2 LEAF RUST
(Races) _____

2 STRIPE RUST
(Races) _____

0 LOOSE SMUT

1 POWDERY MILDEW

0 BUNT

2 OTHER (Specify) _____

Aluminum Toxicity

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

0 SAWFLY

0 APHID (Bydv.)

0 GREEN BUG

0 CEREAL LEAF BEETLE

OTHER (Specify) _____

HESSIAN FLY
RACES:

GP

A

B

C

D

E

F

G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

| CHARACTER | NAME OF VARIETY | CHARACTER | NAME OF VARIETY |
|-----------------|-----------------|-----------------------|-----------------|
| Plant tillering | Inia 66 | Seed size | Yecora Rojo |
| Leaf size | | Seed shape | Yecora Rojo |
| Leaf color | | Coleoptile elongation | |
| Leaf carriage | | Seedling pigmentation | |

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggles and L.P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Sogetal, Inc.

PHONE: 415-981-5500

Agri-Business
Biotechnology830 Bransten Road
San Carlos, Ca. 94070

EXHIBIT D.

2/17/87
YIELD DATA: IS 8314 HEPROYield Trial Data

The following yield data was derived from trials at the respective sites indicated. The experimental design used was a four replication test of twenty-five varieties in a complete randomized block design. The mean square error term indicated is for the complete experiment.

1982 Yield Data

Location: Ontario, Oregon

Grower Cooperator: T. Frahm
Rt. 1 Box 745
Ontario, OR 97914

Planting Date: May 1, 1982

Harvest Date: September 15, 1982

Plot Size: 5.5m²

| Variety | Yield (kilograms/plot) | | | | Yield (bu/ac) | |
|-------------|------------------------|-------|-------|-------|------------------|--------|
| | Rep 1 | Rep 2 | Rep 3 | Rep 4 | | |
| IS 8314 | 2.186 | 2.839 | 2.277 | 2.093 | 2.349 | 63.4 * |
| Yecora Rojo | 1.653 | 1.650 | 1.800 | 1.530 | 1.658 | 44.8 |

Error Mean Square - .121606

Protected Least Significant Difference - .641 kilograms *

1983 Yield Data

Location: Wellton, Arizona

Grower Cooperator: Ronald McDonnell
Rt. 1 Box 100
Wellton, AZ 85356

Planting Date: October 25, 1982

Harvest Date: May 10, 1983

Plot Size: 7.5m²

//

8400047

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Agri-Business
Biotechnology

830 Bransten Road
San Carlos, Ca. 94070

2/17/81

| Variety | Yield (kilograms) | | | | Yield | |
|--------------------|-------------------|-------|-------|-------|-------|---------|
| | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Avg | (bu/ac) |
| 'HIPRO' IS-8314 | 4.621 | 4.309 | 5.301 | 4.876 | 4.777 | 91.8 * |
| Yecora Rojo | 4.196 | 4.310 | 4.451 | 4.025 | 4.245 | 81.5 |

Error Mean Square - .0779

Protected Least Significant Difference - .513 gms *

* Yield significantly greater than Yecora Rojo at the 1% level of confidence using Fisher's Protected Least Significant Difference method of pairwise comparison.

